

Wednesday, October 07, 2015 12:40:48 PM

**\*137604\***

**Accept**

**\*N900040100\***

Setup Start \*NS1\*

Stop \*NS2\*

**Item Name:** Shim Installation

**Start Date:** 9/09/15      **Start Qty:** 4.00      **\*4\***

**Cust Item ID:**

**Required Date:** 10/07/15      **Req'd Qty:** 4.00      **\* / \***

**Customer:**

**Reference:**

Approvals: Process Plan: MLS Date: OCT 08 2015 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

[illegible]

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |                                                                                                                                                            |  |  |
|--------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |  |  |                                                                                                                                                            |  |  |
| Date :                                                       |  | Step #:                                                                                                                                                                            |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  | <b>MRB (QSI042) Approval</b><br><br>Completed By _____<br><br>Lead hand / Supervisor Approval Verification _____<br><br>QC / QA Coordinator Approval _____ |  |  |
| <b>Description Work Order Deviation</b>                      |  |                                                                                                                                                                                    |  | <b>Disposition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |                                                                                                                                                            |  |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |                                                                                                                                                            |  |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |                                                                                                                                                            |  |  |

| Root Cause                           |                                 |                                   |                                        | FAULT CATEGORY                        |                                   |                                             |                                           |                              |                                     |                                           |                                        |                                             |                                   |                                       |                                   |                                   |                                          |                                           |                                  |                                              |                                              |                                                |                                   |                                          |                                  |                                                |                                 |                                                 |                                |                                   |                                     |                                             |                                        |                                           |                                 |                                    |                                               |                                                            |                                        |                                      |                                        |                                                          |                                      |                                           |                                        |                                |                               |                                             |                                          |                                  |                                    |                                       |                                                |                                           |                                             |                                               |                                         |                                            |                                     |                                  |                                 |                                  |                                           |
|--------------------------------------|---------------------------------|-----------------------------------|----------------------------------------|---------------------------------------|-----------------------------------|---------------------------------------------|-------------------------------------------|------------------------------|-------------------------------------|-------------------------------------------|----------------------------------------|---------------------------------------------|-----------------------------------|---------------------------------------|-----------------------------------|-----------------------------------|------------------------------------------|-------------------------------------------|----------------------------------|----------------------------------------------|----------------------------------------------|------------------------------------------------|-----------------------------------|------------------------------------------|----------------------------------|------------------------------------------------|---------------------------------|-------------------------------------------------|--------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------|----------------------------------------|-------------------------------------------|---------------------------------|------------------------------------|-----------------------------------------------|------------------------------------------------------------|----------------------------------------|--------------------------------------|----------------------------------------|----------------------------------------------------------|--------------------------------------|-------------------------------------------|----------------------------------------|--------------------------------|-------------------------------|---------------------------------------------|------------------------------------------|----------------------------------|------------------------------------|---------------------------------------|------------------------------------------------|-------------------------------------------|---------------------------------------------|-----------------------------------------------|-----------------------------------------|--------------------------------------------|-------------------------------------|----------------------------------|---------------------------------|----------------------------------|-------------------------------------------|
| <input type="checkbox"/> Environment | <input type="checkbox"/> Design | <input type="checkbox"/> Doc/Data | <input type="checkbox"/> Equip/Tooling | <input type="checkbox"/> Handling/Pre | <input type="checkbox"/> Material | <input type="checkbox"/> Internal Transport | <input type="checkbox"/> Tribal Knowledge | <input type="checkbox"/> LOA | <input type="checkbox"/> Substation | <input type="checkbox"/> Past Expiry Date | <input type="checkbox"/> Misidentified | <input type="checkbox"/> No Re-verification | <input type="checkbox"/> Operator | <input type="checkbox"/> Offset/Setup | <input type="checkbox"/> Supplier | <input type="checkbox"/> Training | <input type="checkbox"/> Use for Testing | <input type="checkbox"/> Poor Information | <input type="checkbox"/> Rushing | <input type="checkbox"/> Product Improvement | <input type="checkbox"/> Process Improvement | <input type="checkbox"/> Manufacturing Process | <input type="checkbox"/> Past Due | <input type="checkbox"/> Pressure/Forced | <input type="checkbox"/> Bending | <input type="checkbox"/> Centre Not Concentric | <input type="checkbox"/> Cracks | <input type="checkbox"/> Crimp/Kink/Ripple/Wave | <input type="checkbox"/> Cuffs | <input type="checkbox"/> Crushing | <input type="checkbox"/> Heat Treat | <input type="checkbox"/> Wave/Twist in Tube | <input type="checkbox"/> Marks/Chatter | <input type="checkbox"/> Temperature/Cure | <input type="checkbox"/> Set-up | <input type="checkbox"/> BOM/Route | <input type="checkbox"/> Broken/Damage/Defect | <input type="checkbox"/> Inspection Incomplete/Unqualified | <input type="checkbox"/> Contamination | <input type="checkbox"/> Countersink | <input type="checkbox"/> Cut Too Short | <input type="checkbox"/> Instructions Incomplete/Unclear | <input type="checkbox"/> Drill Holes | <input type="checkbox"/> Power Loss/Surge | <input type="checkbox"/> Folio/Program | <input type="checkbox"/> Grain | <input type="checkbox"/> Weld | <input type="checkbox"/> Wrong Stock Pulled | <input type="checkbox"/> Out of Sequence | <input type="checkbox"/> Off-set | <input type="checkbox"/> Misabeled | <input type="checkbox"/> Fit/Function | <input type="checkbox"/> Misaligned/off center | <input type="checkbox"/> Positioned Wrong | <input type="checkbox"/> Outside Dimensions | <input type="checkbox"/> Over/Under tolerance | <input type="checkbox"/> Part Incorrect | <input type="checkbox"/> Part Lost/Missing | <input type="checkbox"/> Part Moved | <input type="checkbox"/> Drawing | <input type="checkbox"/> Finish | <input type="checkbox"/> Misread | <input type="checkbox"/> Turning Sequence |
|                                      |                                 |                                   |                                        |                                       |                                   |                                             |                                           |                              |                                     |                                           |                                        |                                             |                                   |                                       |                                   |                                   |                                          |                                           |                                  |                                              |                                              |                                                |                                   | OTHER : _____                            |                                  |                                                |                                 |                                                 |                                |                                   |                                     |                                             |                                        |                                           |                                 |                                    |                                               |                                                            |                                        |                                      |                                        |                                                          |                                      |                                           |                                        |                                |                               |                                             |                                          |                                  |                                    |                                       |                                                |                                           |                                             |                                               |                                         |                                            |                                     |                                  |                                 |                                  |                                           |

**Work Order ID 137604**

Wednesday, October 07, 2015 12:40:48 PM

**\*137604\***

Page 2

Item ID: DSI 9730-011

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Item Name: Shim Installation

Stop

**\*NS2\***

Start Date: 9/09/15

Start Qty: 4.00

**\*4\***

Cust Item ID:

Required Date: 10/07/15

Req'd Qty: 4.00

**\*4\***

Customer:

Reference:

Approvals:

Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run

Start

**\*NR1\***

QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop

**\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

130

**\*130\***

Packaging

Packaging

Packaging

Memo

Identify and pack for shipping as per PPP DSI9730-011

0.00

0.00

f6/25

4x

DAS  
28  
9-88

NOV 23 2015

140

**\*140\***

QC

Quality Control

QC21- Final Inspection - Work Order Release

Memo

0.00

0.00

MLJ

15-11-23

MLJ 1571-23

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                      |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |  |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>MRB (QS1042) Approval</b><br><br>Completed By _____<br><br>Lead hand / Supervisor Approval Verification _____<br><br>QC / QA Coordinator Approval _____ |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| <b>Root Cause</b><br>Environment <input type="checkbox"/><br>Design <input type="checkbox"/><br>Doc/Data <input type="checkbox"/><br>Equip/Tooling <input type="checkbox"/><br>Handling/Pre <input type="checkbox"/><br>Material <input type="checkbox"/><br>Internal Transport <input type="checkbox"/><br>Tribal Knowledge <input type="checkbox"/><br>LOA <input type="checkbox"/><br>Substation <input type="checkbox"/><br>Past Expiry Date <input type="checkbox"/><br>Misidentified <input type="checkbox"/> |  | <input type="checkbox"/> No Re-verification<br><input type="checkbox"/> Operator<br><input type="checkbox"/> Offset/Setup<br><input type="checkbox"/> Supplier<br><input type="checkbox"/> Training<br><input type="checkbox"/> Use for Testing<br><input type="checkbox"/> Poor Information<br><input type="checkbox"/> Rushing<br><input type="checkbox"/> Product Improvement<br><input type="checkbox"/> Process Improvement<br><input type="checkbox"/> Manufacturing Process<br><input type="checkbox"/> Past Due |  | <b>FAULT CATEGORY</b><br><input type="checkbox"/> Pressure/Forced<br><input type="checkbox"/> Bending<br><input type="checkbox"/> Centre Not Concentric<br><input type="checkbox"/> Cracks<br><input type="checkbox"/> Crimp/Kink/Ripple/Wave<br><input type="checkbox"/> Cuffs<br><input type="checkbox"/> Crushing<br><input type="checkbox"/> Heat Treat<br><input type="checkbox"/> Wave/Twist in Tube<br><input type="checkbox"/> Marks/Chatter<br><input type="checkbox"/> Temperature/Cure<br><input type="checkbox"/> Set-up<br><input type="checkbox"/> BOM/Route<br><input type="checkbox"/> Broken/Damage/Defect<br><input type="checkbox"/> Inspection Incomplete/Unqualified<br><input type="checkbox"/> Contamination<br><input type="checkbox"/> Countersink<br><input type="checkbox"/> Cut Too Short<br><input type="checkbox"/> Instructions Incomplete/Unclear<br><input type="checkbox"/> Drill Holes                    |  | <input type="checkbox"/> Power Loss/Surge<br><input type="checkbox"/> Folio/Program<br><input type="checkbox"/> Grain<br><input type="checkbox"/> Weld<br><input type="checkbox"/> Wrong Stock Pulled<br><input type="checkbox"/> Out of Sequence<br><input type="checkbox"/> Off-set<br><input type="checkbox"/> Mislabeled<br><input type="checkbox"/> Fit/Function<br><input type="checkbox"/> Misaligned/off center |                                                                                                                                                            | <input type="checkbox"/> Positioned Wrong<br><input type="checkbox"/> Outside Dimensions<br><input type="checkbox"/> Over/Under tolerance<br><input type="checkbox"/> Part Incorrect<br><input type="checkbox"/> Part Lost/Missing<br><input type="checkbox"/> Part Moved<br><input type="checkbox"/> Drawing<br><input type="checkbox"/> Finish<br><input type="checkbox"/> Misread<br><input type="checkbox"/> Turning Sequence |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | <input type="checkbox"/> OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |

# Picklist Print

Wednesday, October 07, 2015 12:40:48 PM

Page 1

Work Order ID: 137604

**\*137604\***

Parent Item: DSI 9730-011

**\*DSI 9730-011\***

Parent Item Name: Shim Installation

Start Date: 9/09/15

Required Date: 10/07/15

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP REV:A 15.09.04 NEW ISSUE DD VERF:JLM

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand  | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status            |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|-----------------|-------------|--------------|---------------|----------------|-------------------|
| D5305-1<br>Shim                 |                        | Manufactured  | No          |                     |                  |                 | Each               | 20.0000         | 2           | 8            |               |                | DAS<br>26<br>9-89 |
| <b>*D5305-1*</b>                |                        |               |             |                     |                  |                 |                    |                 | **          |              |               |                |                   |
| 4                               | DAS<br>28<br>9-89      |               |             | <u>Location</u>     |                  | <u>Loc Qty</u>  |                    | <u>Loc Code</u> |             |              |               |                |                   |
|                                 |                        |               |             | ST124               |                  | 20              |                    |                 |             |              |               |                |                   |
|                                 |                        |               |             | 137042              |                  | 20              |                    |                 |             |              |               |                |                   |
| MS21920-24<br>Clamp             |                        | Purchased     | No          |                     |                  |                 | Each               | 65.0000         | 2           | 8            |               |                | DAS<br>26<br>9-89 |
| <b>*MS21920-24*</b>             |                        |               |             |                     |                  |                 |                    |                 | **          |              |               |                |                   |
| 4                               | DAS<br>28<br>9-89      |               |             | <u>Location</u>     |                  | <u>Loc Qty</u>  |                    | <u>Loc Code</u> |             |              |               |                |                   |
|                                 |                        |               |             | FG                  |                  | 2               |                    |                 |             |              |               |                |                   |
|                                 |                        |               |             | 117998              |                  | 2               |                    |                 |             |              |               |                |                   |
|                                 |                        |               |             | LG050               |                  | 25              |                    |                 |             |              |               |                |                   |
|                                 |                        |               |             | m133316             |                  | 25              |                    |                 |             |              |               |                |                   |
|                                 |                        |               |             | LG0574              |                  | 38              |                    |                 |             |              |               |                |                   |
|                                 |                        |               |             | 120079              |                  | 1               |                    |                 |             |              |               |                |                   |
|                                 |                        |               |             | m129317             |                  | 5               |                    |                 |             |              |               |                |                   |
|                                 |                        |               |             | m133031             |                  | 32              |                    |                 |             |              |               |                |                   |

NOV 18 2015

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |                                                                                                                                                            |  |  |
|--------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |  |  |                                                                                                                                                            |  |  |
| Date :                                                       |  | Step #:                                                                                                                                                                            |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  | <b>MRB (QSI042) Approval</b><br><br>Completed By _____<br><br>Lead hand / Supervisor Approval Verification _____<br><br>QC / QA Coordinator Approval _____ |  |  |
| Description Work Order Deviation                             |  |                                                                                                                                                                                    |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |                                                                                                                                                            |  |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |                                                                                                                                                            |  |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |                                                                                                                                                            |  |  |

| Root Cause         |                          |                       |                          | FAULT CATEGORY         |                          |                                   |                          |                       |                          |                      |                          |
|--------------------|--------------------------|-----------------------|--------------------------|------------------------|--------------------------|-----------------------------------|--------------------------|-----------------------|--------------------------|----------------------|--------------------------|
| Environment        | <input type="checkbox"/> | No Re-verification    | <input type="checkbox"/> | Pressure/Forced        | <input type="checkbox"/> | Temperature/Cure                  | <input type="checkbox"/> | Power Loss/Surge      | <input type="checkbox"/> | Positioned Wrong     | <input type="checkbox"/> |
| Design             | <input type="checkbox"/> | Operator              | <input type="checkbox"/> | Bending                | <input type="checkbox"/> | Set-up                            | <input type="checkbox"/> | Folio/Program         | <input type="checkbox"/> | Outside Dimensions   | <input type="checkbox"/> |
| Doc/Data           | <input type="checkbox"/> | Offset/Setup          | <input type="checkbox"/> | Centre Not Concentric  | <input type="checkbox"/> | BOM/Route                         | <input type="checkbox"/> | Grain                 | <input type="checkbox"/> | Over/Under tolerance | <input type="checkbox"/> |
| Equip/Tooling      | <input type="checkbox"/> | Supplier              | <input type="checkbox"/> | Cracks                 | <input type="checkbox"/> | Broken/Damage/Defect              | <input type="checkbox"/> | Weld                  | <input type="checkbox"/> | Part Incorrect       | <input type="checkbox"/> |
| Handling/Pre       | <input type="checkbox"/> | Training              | <input type="checkbox"/> | Crimp/Kink/Ripple/Wave | <input type="checkbox"/> | Inspection Incomplete/Unqualified | <input type="checkbox"/> | Wrong Stock Pulled    | <input type="checkbox"/> | Part Lost/Missing    | <input type="checkbox"/> |
| Material           | <input type="checkbox"/> | Use for Testing       | <input type="checkbox"/> | Cuffs                  | <input type="checkbox"/> | Contamination                     | <input type="checkbox"/> | Out of Sequence       | <input type="checkbox"/> | Part Moved           | <input type="checkbox"/> |
| Internal Transport | <input type="checkbox"/> | Poor Information      | <input type="checkbox"/> | Crushing               | <input type="checkbox"/> | Countersink                       | <input type="checkbox"/> | Off-set               | <input type="checkbox"/> | Drawing              | <input type="checkbox"/> |
| Tribal Knowledge   | <input type="checkbox"/> | Rushing               | <input type="checkbox"/> | Heat Treat             | <input type="checkbox"/> | Cut Too Short                     | <input type="checkbox"/> | Mislabeled            | <input type="checkbox"/> | Finish               | <input type="checkbox"/> |
| LOA                | <input type="checkbox"/> | Product Improvement   | <input type="checkbox"/> | Wave/Twist in Tube     | <input type="checkbox"/> | Instructions Incomplete/Unclear   | <input type="checkbox"/> | Fit/Function          | <input type="checkbox"/> | Misread              | <input type="checkbox"/> |
| Substation         | <input type="checkbox"/> | Process Improvement   | <input type="checkbox"/> | Marks/Chatter          | <input type="checkbox"/> | Drill Holes                       | <input type="checkbox"/> | Misaligned/off center | <input type="checkbox"/> | Turning Sequence     | <input type="checkbox"/> |
| Past Expiry Date   | <input type="checkbox"/> | Manufacturing Process | <input type="checkbox"/> | OTHER : _____          |                          |                                   |                          |                       |                          |                      |                          |
| Misidentified      | <input type="checkbox"/> | Past Due              | <input type="checkbox"/> |                        |                          |                                   |                          |                       |                          |                      |                          |

# DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D119-796 REV. D AND  
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D119-796 REV. 2

REF CANADIAN: STC SH14-45

REF FAA STC: SR03504NY

REF EASA STC: 10052022

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 137604 MJS  
15-10-08

## 1.0 PURPOSE

The purpose of this Dart Service Instruction is to add an aluminum abrasion strip (shim) to the D119-796-101/-103 Fwd Crosstube under the OEM lower clamp assy (P/N 109-0570-20-107) to reduce the abrasion and increase the clamping force on the fwd crosstubes. The DSI9730-011 Kit is available for customers who prefer to use pre-fabricated shims from Dart.

## 2.0 INSTALLATION

**Note:** To perform the following installation, the fwd crosstube must be lowered from the aircraft structure sufficiently to allow a minimum gap of 0.50 inches between the mating surfaces of the 109-0570-15-101 Fitting Assy and the D5124-1 Fwd Support.

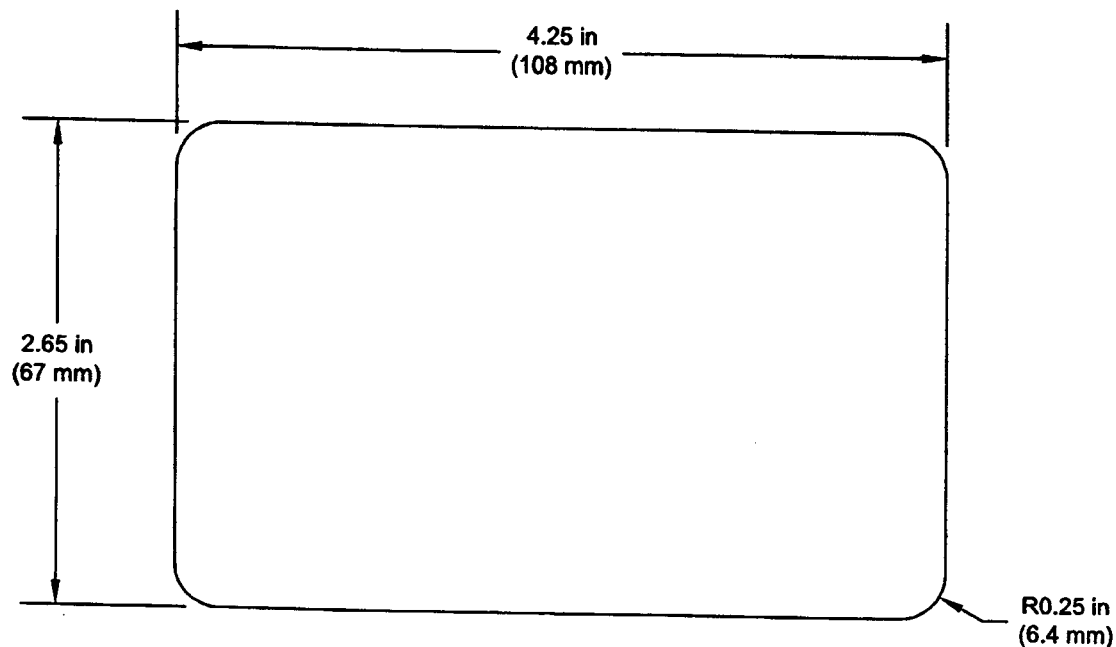
- 2.1 Remove the (qty 2) 109-0570-20-107 Clamp Assy and (qty 2) outboard MS21920 Clamps and Cushions. Retain hardware.
- 2.2 If not using the DSI9730-011 Shim Kit, fabricate two rectangular shims as per Figure 1 using 16 gauge (0.051in thk) aluminum. Break all sharp edges 0.010 to 0.025 max. Treat with chemical film material (Alodine 1200 or 1201) per MIL-C-5541.
- 2.3 Form the shims to fit the underside of the crosstube in the location shown in Figure 2. Note that the long axis of the shim is along the circumferential direction of the crosstube.
- 2.4 Abrade mating surfaces of the shims and crosstube with Scotch Brite and remove residue. Apply a minimum 0.020"-0.040" (0.51mm - 1.02mm) thk layer of Proseal 890 B1/2 or B2 on the concave surface of the shims and install in the location shown in Figure 2.
- 2.5 Apply clamping pressure using the outboard MS21920 Clamps with Cushions as well as an additional MS21920 Clamps as shown in Figure 2. Tighten the MS21920 Clamps sufficiently to allow even pressure on the circumference of the shims (do not torque the MS21920 Clamps). Allow Proseal 890 to cure for minimum of 36 hours with clamping pressure.
- 2.6 Torque outboard MS21920-24 Clamps securing the D5124-1 Fwd Supports to the crosstube to 80-100 in-lbs (9.0 - 11.3 Nm)
- 2.7 Remove additional MS21920 Clamps and re-install the D119-796-101/-103 Fwd Crosstube with 109-0570-20-107 Clamps in accordance with applicable Maintenance Instructions.

CANADA  
DEPARTMENT OF TRANSPORT  
AIRCRAFT CERTIFICATION  
BRANCH  
DAO # 01-O-01

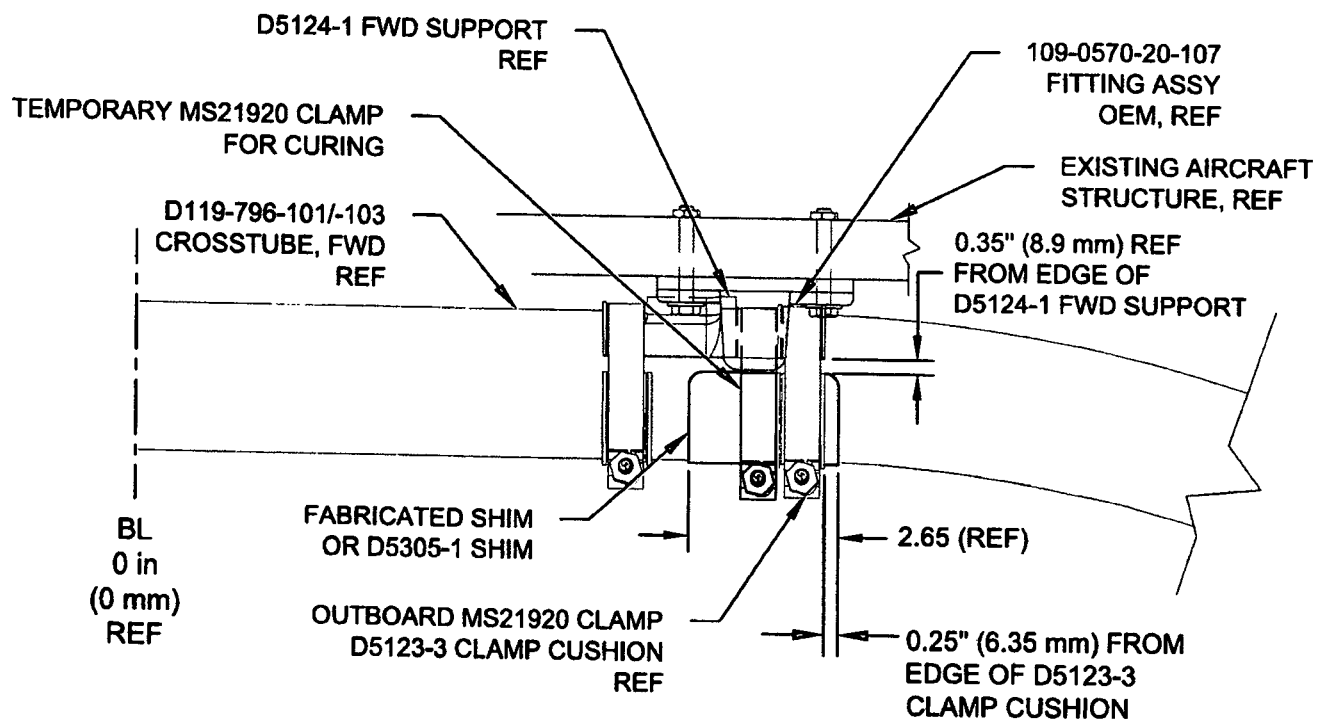
APPROVED  
BY:   
D. SHEPHERD (DE # 02)

DATE: 15.08.20  
CERT. NO.: SH14-45  
ISSUE NO.: 1

|            |                                                                                     |                                                                                                                                                                                                                                                                                           |              |
|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| A          | NEW ISSUE                                                                           | AP                                                                                                                                                                                                                                                                                        | 15.08.20     |
| REV.       | DESCRIPTION                                                                         | BY                                                                                                                                                                                                                                                                                        | DATE         |
| DESIGN     | AP                                                                                  | <b>DART AEROSPACE, LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                 |              |
| DRAWN      | AP                                                                                  |                                                                                                                                                                                                                                                                                           |              |
| CHECKED    | q                                                                                   | DRAWING NO.                                                                                                                                                                                                                                                                               | REV.A        |
| MFG. APPR. | N/A                                                                                 | DSI 9730                                                                                                                                                                                                                                                                                  | SHEET 1 OF 3 |
| APPROVED   |  | TITLE                                                                                                                                                                                                                                                                                     | SCALE        |
| DE APPR.   |  | FWD CROSSTUBE SHIM INSTL                                                                                                                                                                                                                                                                  | NTS          |
| DATE       | 15.08.20                                                                            | COPYRIGHT © 2015 BY DART AEROSPACE, LTD<br><small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE, LTD.</small> |              |



**Figure 1: Fwd Crosstube Shim Dimensions (D5305-1 SHIM)**



**Figure 2: Fwd Crosstube Shim Installation**

|            |                    |                                                                                                                                                                                                                                                                                           |              |
|------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | AP                 | <b>DART AEROSPACE, LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                 |              |
| DRAWN      | AP                 |                                                                                                                                                                                                                                                                                           |              |
| CHECKED    | <i>[Signature]</i> | DRAWING NO.                                                                                                                                                                                                                                                                               | REV.A        |
| MFG. APPR. | N/A                | DSI 9730                                                                                                                                                                                                                                                                                  | SHEET 2 OF 3 |
| APPROVED   | <i>[Signature]</i> | TITLE                                                                                                                                                                                                                                                                                     | SCALE        |
| DE APPR.   | <i>[Signature]</i> | FWD CROSSTUBE SHIM INSTL                                                                                                                                                                                                                                                                  | NTS          |
| DATE       | 15.08.20           | COPYRIGHT © 2015 BY DART AEROSPACE, LTD<br><small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE, LTD.</small> |              |



### 3.0 PARTS LIST

| QTY<br>-011                                                                       | PART NUMBER | DESCRIPTION |
|-----------------------------------------------------------------------------------|-------------|-------------|
|  | DSI9730-011 | SHIM KIT    |
| 2                                                                                 | D5305-1     | SHIM        |
| 2                                                                                 | MS21920-24  | CLAMP       |

### 4.0 WEIGHT AND BALANCE

There is negligible weight and balance change associated with this modification.

|            |                                                                                     |                                                                                                                                                                                                                                                                                           |
|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGN     | AP                                                                                  | <b>DART AEROSPACE, LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                 |
| DRAWN      | AP                                                                                  |                                                                                                                                                                                                                                                                                           |
| CHECKED    |  | DRAWING NO. REV.A                                                                                                                                                                                                                                                                         |
| MFG. APPR. | N/A                                                                                 | DSI 9730 SHEET 3 OF 3                                                                                                                                                                                                                                                                     |
| APPROVED   |  | TITLE SCALE                                                                                                                                                                                                                                                                               |
| DE APPR.   |  | FWD CROSSTUBE SHIM INSTL NTS                                                                                                                                                                                                                                                              |
| DATE       | 15.08.20                                                                            | COPYRIGHT © 2015 BY DART AEROSPACE, LTD<br><small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE, LTD.</small> |